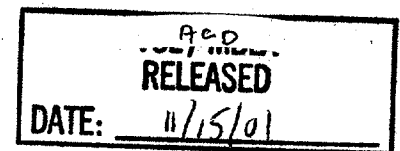


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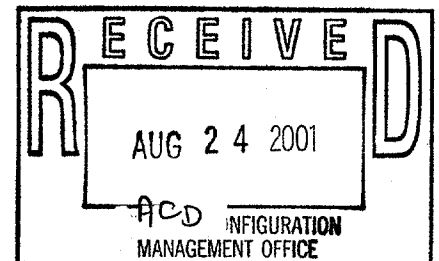
**GAMMA-RAY LARGE AREA
SPACE TELESCOPE
(GLAST) PROJECT**

**LARGE AREA TELESCOPE (LAT)
ANTI COINCIDENCE DETECTOR (ACD)
QUALITY PLAN**



ORIGINAL

ACD-QA-8001
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August 24, 2001



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| Document Change Record | | | | |
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SECTION 1. OVERALL IMPLEMENTATION

1.1 AUGMENTATION TO DESCRIPTION OF OVERALL IMPLEMENTATION

The Safety and Mission Assurance (S&MA) Program for the GSFC-provided GLAST LAT Anti-Coincidence Detector (ACD) subsystem will be implemented in accordance with the GLAST LAT PAIP unless augmented or otherwise modified by the text below. These changes are required in order to adhere to the GSFC ISO 9001 system and other NASA/GSFC-specific requirements.

1.1.1 Augmentation to Assurance Management Organization

In addition to the Assurance Management Organization described in the PAIP, the ACD S&MA organization at GSFC will be supplemented with a staff consisting of the GSFC GLAST/ACD Systems Assurance Manager (assigned by GSFC Code 300) who will lead the GSFC GLAST/ACD S&MA Program, the GLAST/LAT/ACD Parts Engineer (assigned by SLAC), the GLAST/ACD Program Safety Manager (assigned by GSFC Code 300), and additional GSFC S&MA support personnel who will be appointed by the appropriate GSFC Directorates as required.

- a. The GLAST Systems Assurance Manager (SAM) will support the ACD Instrument Manager in the coordination, definition and implementation of the ACD S&MA Program. These activities will be accomplished in accordance with 303-PG-1060.1.2, "Assurance Management Procedures and Guidelines." The SAM will coordinate the efforts of the ACD S&MA staff including, but not limited to, hardware quality, software quality, reliability, parts, materials, contamination control, risk management, and system safety engineers.
- b. The GLAST Program Safety Manager (PSM) will be responsible for the ACD Safety Program and will direct the activities of all ACD/GLAST safety personnel. These activities will be accomplished in accordance with 302-PG-7120.2.1, "Systems Safety and Reliability Office Procedures and Guidelines."

1.3 AUGMENTATION TO SURVEILLANCE

In addition to the surveillance responsibilities described in the PAIP and the GSFC GLAST Project Surveillance Plan (document number TBD), the following ACD S&MA responsibilities are established:

- a. The GLAST/ACD SAM will provide overall direction of the surveillance activities of the ACD S&MA Staff.
- b. As applicable/required the ACD S&MA Staff members will review deliverables; participate in MRB, CCB, FRB, PCB, M&PCB, and other board meetings; and attend peer and design reviews.
- c. The ACD S&MA Staff will provide on-site support at GSFC as well as at other GLAST facilities/sites (including SLAC, collaborator sites, and subcontractor/supplier sites) as applicable.
- d. ACD S&MA team members will attend ACD Staff Meetings as required/appropriate.

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- e. The ACD Hardware QE will inspect all ACD hardware and witness or monitor fabrication/test activities as applicable.
- f. The ACD Software QE will witness or monitor software testing/activities as applicable.

1.4 AUGMENTATION TO APPLICABLE DOCUMENTS (Section 13)

In addition to those applicable documents cited in Section 13 of the LAT PAIP, Section 13 of this plan lists NASA/GSFC-specific implementing documents that form a part of this plan.

1.5 AUGMENTATION TO ACRONYMS AND GLOSSARY (Section 14)

In addition to the acronyms and definitions cited in Section 14 of LAT PAIP, Section 14 of this plan lists additional acronyms and definitions appropriate to this document.

1.6 AUGMENTATION TO CONTRACT DELIVERY REQUIREMENTS LIST (CDRL)

The ACD portion of a LAT deliverable will be due to SLAC 30 days prior to the delivery date cited in the LAT CDRL for that item.

SECTION 2. SYSTEM SAFETY REQUIREMENTS

2.1 AUGMENTATION TO SYSTEM SAFETY REQUIREMENTS

In addition to the system safety requirements described in the PAIP, the ACD S&MA Program will adhere to GMI-1700.3, "System Safety for Orbital Flight Projects," which covers the design, fabrication, integration, verification, transportation, launch preparation, launch, space operations, retrieval, orbital maintenance, landing, post-landing, and final disposition of orbital flight projects. It also covers management procurement and any reviews that ensure risks are identified and either eliminated or controlled.

2.3 OCCUPATIONAL SAFETY REQUIREMENTS (NEW)

All ACD activities at GSFC will adhere to the occupational safety requirements described in the following instructions and directives:

- a. GMI-1700.2, "GSFC Health and Safety Program"
- b. GMI-1780.1, "GSFC Confined Space Policy"
- c. GMI-1800.1, "Occupational Medicine"
- d. GPD-8870.1, "Environmental Program"

SECTION 5. ELECTRONIC PACKAGING and PROCESSES REQUIREMENTS

5.2 AUGMENTATION TO WORKMANSHIP

In addition to the workmanship standards identified in the PAIP, ACD activities at GSFC will adhere to the following workmanship standards and specifications:

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- a. IPC-6011, "Generic Performance Specification for Printed Boards, Class 3 Performance Requirements"
- b. IPC-6012, "Qualification and Performance Specification for Rigid Printed Boards, Class 3 Performance Requirements"
- c. S312-P-003B, "Procurement Specification for Rigid Printed Boards for Space Applications and Other High Reliability Uses"

All personnel performing ACD electronic packaging and processing will be trained and certified to the appropriate standards.

SECTION 6. PARTS REQUIREMENTS

6.2.2 Augmentation to Parts Selection and Processing

In addition to the parts requirements identified in the PAIP, the process for Receiving Inspection will be documented on a Work Order Authorization (WOA) document, GSFC Form 4-30, in accordance with GPG 4520.2, "Incoming Inspection and Test." Subsequent processing (e.g., in-process or final inspections and tests) will be documented on the WOA in accordance with GPG 5330.1C, "Product Processing, Inspection, and Test." ESDS devices will be subject to ESD controls as prescribed in 562-PG-6400.1.1, "GSFC Procedures and Guidelines for Electrostatic Discharge (ESD) Control of Electrostatic Discharge Sensitive (ESDS) Devices." Nonconforming product will be processed in accordance with GPG 5340.2F, "Control of Nonconforming Product."

6.4 AUGMENTATIONS TO ALERTS

In addition to the requirements identified in the PAIP, the processing of GIDEP Alerts at GSFC will be in accordance with GPG 5340.3B, "Preparation and Handling of Alerts and Safe Alerts". As a further augmentation, the processing of NASA Parts Advisories will be in accordance with 562-PG-5340.3.1, "Preparation and Distribution of NASA Parts Advisories."

SECTION 9. QUALITY ASSURANCE REQUIREMENTS

9.1 AUGMENTATION TO GENERAL REQUIREMENTS

In addition to the quality management system requirements described in the PAIP, ACD activities at GSFC will adhere to the requirements and procedures described in the following documents:

- a. GPG-5340.3, "Preparation and Handling of Alerts and Safe Alerts"
- b. GSFC-GPG-5330.1, "Product Processing, Inspection and Test"
- c. 302-PG-1410.2.1, "Goddard Non-Conformance Reporting and Corrective Action System Configuration Control Board (CCB)"
- d. GPG-8621.1, "Mishap, Incident, and Close Call Investigation"

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SECTION 10. CONTAMINATION CONTROL REQUIREMENTS

10.2 AUGMENTATION TO CONTAMINATION CONTROL PLAN

In addition to the contamination control requirements described in the PAIP, ACD activities at GSFC will adhere to the requirements and procedures described in the following documents:

- a. 545-PG-8700.2.2, "Contamination Design, Analysis, Test, and Hardware Implementation Guidelines"
- b. 545-WI-8072.1.1, "Recommended Cleaning Procedures for Spacecraft and Instrument Surfaces"
- c. 545-WI-8072.1.2, "Contamination Control Procedure, for the Tape Lift Sampling of Surfaces"

10.3 AUGMENTATION TO MATERIAL OUTGASSING

In addition to the material outgassing requirements described in the PAIP, ACD activities at GSFC will adhere to ASTM E1559, "Standard Test Method for Contamination Outgassing Characteristics of Spacecraft Materials."

SECTION 13. AUGMENTATION TO APPLICABLE DOCUMENTS LIST

In addition to the applicable documents identified in Section 13 of the PAIP, the following documents are applicable to ACD activities at GSFC:

| | |
|-----------------------|--|
| GSFC 303-PG-1060-1.2A | Assurance Management |
| GSFC 302-PG-1410.2.1 | Project Surveillance |
| GSFC 302-PG-7120.2.1 | Systems Safety support for GSFC Missions |
| GSFC 303-PG-5100.1.2 | Goddard Non-Conformance Reporting and Corrective Action System Configuration Control Board (CCB) |
| GSFC 545-PG-8700.2.2 | Contamination Design, Analysis, Test, and Hardware Implementation Guidelines |
| GSFC 545-WI-8072.1.1 | Recommended Cleaning Procedures for Spacecraft and Instrument Surfaces |
| GSFC 545-WI-8072.1.2 | Contamination Control Procedure for the Tape Lift Sampling of Surfaces |
| ASTM-E1559-00 | Standard Test Method for Contamination Outgassing Characteristics of Spacecraft Materials, |
| GSFC GMI-1152.7E | Safety and Environmental Steering Committee |
| GSFC GMI-1700.2C | GSFC Health and Safety Program |

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| GSFC GMI-1700.3 | System Safety for Orbital Flight Projects |
| GSFC GMI-1780.1 | GSFC Confined Space Policy |
| GSFC GMI-1800.1C | Occupational Medicine and Environmental Health Program |
| GSFC GPD-8870.1 | Environmental Program Management |
| GSFC GPG-5330.1 | Product Processing, Inspection, and Test |
| GSFC GPG-5340.3 | Preparation and Handling of Alerts and Safe Alerts |
| GSFC GPG-8621.1 | Mishap, Incident, and Close Call Investigation |
| GSFC-433-RQMT-0005 | Electromagnetic Interference Requirements (EMI) |
| GSFC (Number TBD) | GLAST Project Surveillance Plan |

SECTION 14. AUGMENTATION TO ACRONYMS AND GLOSSARY

In addition to the acronyms and definitions identified in Section 14 of the PAIP, the following acronyms and definitions are applicable to ACD:

| | |
|-------|---------------------------------------|
| ACD | Anti-Coincidence Detector |
| ESDS | Electrostatic Discharge Sensitive |
| M&PCB | Materials and Processes Control Board |
| WOA | Work Order Authorization |